

In the Claims:

Please cancel claims 1-17 and add the following new claims 18-31.

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18. A self-hardening calcium phosphate composite, comprising:
an amorphous calcium phosphate;
a second calcium phosphate having a calcium to phosphate atomic ratio of less than or equal to 1.67, wherein the amorphous calcium phosphate and the second calcium phosphate in combination have a calcium to phosphate atomic ratio in the range of 1.1 to 1.9;
a supplemental material, said supplemental material comprising demineralized bone matrix; and
a carrier fluid in an amount sufficient to form a paste or putty.
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19. The composite of claim 18, wherein the amorphous calcium phosphate and the second calcium phosphate in combination have a calcium to phosphate atomic ratio is less than 1.5.
20. The composite of claim 18, wherein the amorphous calcium phosphate has a calcium to phosphate ratio (Ca:P) of about 1.55 to 1.65.
21. The composite of claim 18, wherein the second calcium phosphate is selected from the group consisting of calcium metaphosphate, dicalcium phosphate dihydrate, heptacalcium decaphosphate, tricalcium phosphate, monetite, calcium pyrophosphate dihydrate, hydroxyapatite, calcium deficient hydroxyapatite, octacalcium phosphate, and calcium pyrophosphate.
22. The composite of claim 21, wherein the second calcium phosphate comprises, dicalcium phosphate dihydrate.
23. The composite of claim 21, wherein the dicalcium phosphate dihydrate has an average grain size of less than 95 microns.
24. The composite of claim 21, wherein the dicalcium phosphate dihydrate has an average grain size of about 35-45 microns.
25. The composite of claim 18, wherein the amorphous calcium phosphate and second calcium phosphate are present in proportions ranging from 5:1 to 1:5 wt/wt.

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26. The composite of claim 18, wherein the carrier fluid is selected from the group consisting of pH buffered solution, saline solution, tissue culture medium and serum.

27. The composite of claim 18, wherein the carrier liquid is present in an amount in the range of about 0.5 mL to about 2.0 mL liquid per gram calcium phosphate.

28. The composite of claim 18, wherein the supplemental material comprises 1 - 50 vol% of the composite.

29. The composite of claim 18, wherein the supplemental material comprises 1-20 vol% of the composite.

30. The composite of claim 18, wherein the supplemental material is in particulate form.

31. The composite of claim 18, wherein the supplemental material is in fiber form.
